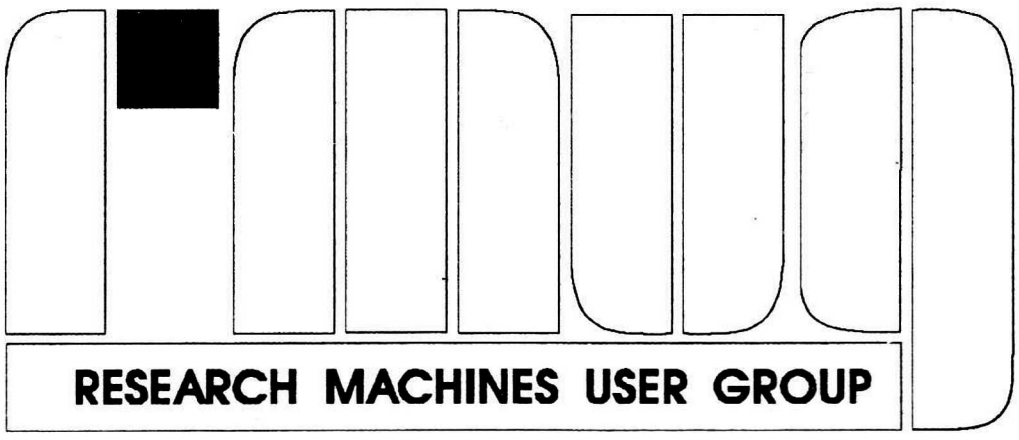
RM User

Volume 8:6
March 1994



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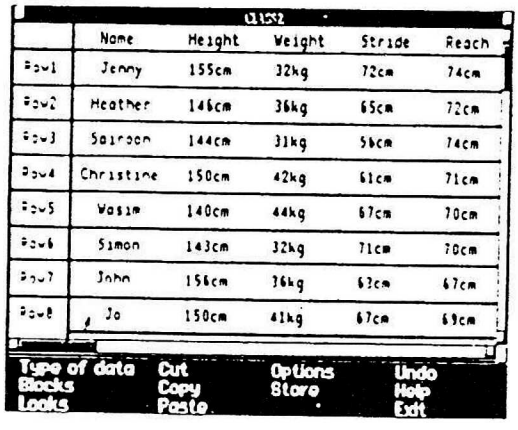

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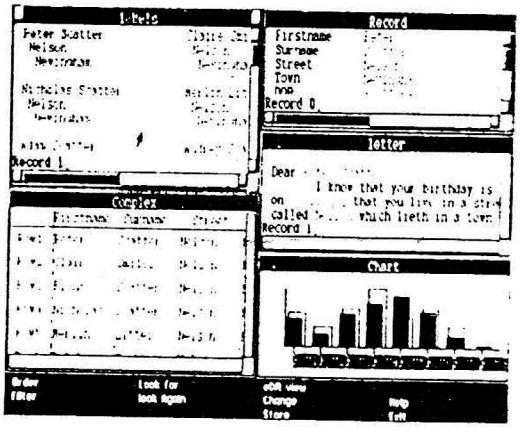

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HelpLine

The User Group exists to help its members use the computers which they have.

The magazine is the main way in which we communicate with our members. If you find that it's not covering the areas you want to know about then phone someone listed at the back and let them know what you would like to see; the chances are that you won't be the only person who has the same needs.

Many of you (about 20%) are home users of Nimbus computers and we would like to help you. Do please phone any of the people whose numbers are listed at the back of the magazine and we will do our best to help.

You may find that you have a problem which you feel is too trivial for Customer Support or you may have a problem with which they can't help, perhaps because you have a non-standard setup for your equipment or you are using third-party equipment. This is the time when we may be able to help.

Remember that you can telephone the User Group members in the evening or at weekends when RM is shut (and, of course, you are just bound to hit problems). Also, RM don't claim to have great knowledge of products which they don't produce such as Excel or PageMaker. They can tell you how to install the packages on their equipment and how to get started but they cannot be expected to give you in depth support on using the packages. We, on the other hand, can. Most of the people whose phone numbers are listed at the back are using a range of software which is probably the same as yours on a daily basis. We may have met exactly the problem you have just encountered.

If you are in difficulty, please ring anybody on the Committee (numbers at the back) and you may also phone Tim Phillips on 0284 706623 (home number).

It is a great help if you are having a problem doing something using your computer if you can be next to it when you phone because it may then be possible to talk you through a solution over the phone.

If your problem is not urgent, or you think it may be difficult to explain over the phone, then do please write to the Editor with your query. I will either reply to you directly or pass your query on to a better person to solve it or publish your letter in the next magazine as a request for help.

If you have had a problem which you have solved for yourself then please share your knowledge; your solution is quite likely to be useful to someone else, even if you think it is trivial; remember that many of our members are new to using RM equipment.

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Deadlines for the next issues

RM User 9:1 ..... 9 May 1994
RM User 9:2 ..... 24 June 1994

The date shown above is the ***latest*** date for copy for the magazine. You will normally receive the magazine about 2-3 weeks after the date shown.

Missing a Magazine?

Back issues of the magazine are available from the editor. Write to RMUG, 46 Ollgar Close, Shepherd's Bush, London, W12 0NG for more details.

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News and Editorial

The Annual General Meeting is taking place slightly later than usual this year - please see the centre pages for details. When we carried out the survey of our members nearly two years ago we found that many people would welcome a chance to learn more about the software that RM supply with their computers so the afternoon will be an opportunity for small groups of people to work together with more experienced members to learn about the software. We do hope that you will be able to attend and that you will find the day useful.

The best piece of software I've looked at this month (and probably for the whole year!) is Flexidata. This is a database package which has been designed to do exactly what schools need without being outrageously complex or too simple to be of use. For more details see Ken Maynard's review on page 16 but basically, if you're looking for something to use for processing data at any level up to GCSE or even A Level then this is a package you should seriously consider. One of the best features is that it's not processor or memory hungry; it's DOS based so 1Mb of memory is plenty and it'll run off a floppy disc if necessary. Even though it has lowly requirements it has a windowed interface and works well with a mouse. Maybe some of the programmers of the big packages should pop into Flexible Software for lessons! My only regret is that it appeared the month after I had bought Key Plus! For more details contact Flexible Software on 0865 391148.

I mentioned last month that RM were now shipping Net LM 2. There's not much more to say except that everything is going well; we had to wait a long time for it but at least the long delay does seem to mean that it's not got any bugs in it. (That doesn't mean to say that I'm satisfied, of course! I still don't like bits of Station and User Manager but at least they work properly and having had a chance to look at the equivalent ICL offering recently I'm certain that the RM version is simply streets ahead). If you're wanting to upgrade then a booklet detailing the process is now available from sales. Upgrades are already being installed and so far it seems to be a fairly painless process (although it does take a lot of time - it's not just a case of sticking a floppy in the drive and typing UPGRADE).

Letraset produced a program called Painter for the Apple Mac some time ago which received rave reviews; it's now available on the PC. If you are looking for a high quality painting program then it's certainly worth looking at this. It's a high end package (requiring at least 6Mb of memory and a minimum of a 256 colour video driver) and the demo version I have runs fairly slowly on my PC386/20 with 8Mb of RAM but it really is impressive. I'm not an artist (as those of you who remember my first magazine covers will know!) so I can't really evaluate it fully but it has a range of tools which seem closer to those that a "real" artist would use - charcoal, oil paint and pastels, water colours (and the facility to smear paint by adding drops of water - fascinating to watch) - which all look the way I

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think they should. It costs about £250 so it's not the thing to use if you just want to do the odd illustration but it's worth a look if you are trying to find a proper painting program.

I regularly log on to the RM Bulletin Board and find it very useful. If you still haven't done so then you should really give it a go. You'll need a modem and some communications software (but if you've got Windows then the Terminal program that comes with it will get you going perfectly well). One of the worries that some people have about computer comms is the cost of the phone calls and one way of preventing this from being a problem is to use some kind of Off Line Reader; I use Silly Little Mail Reader and all I do is log on, choose the Message Menu and press T to go into the TomCat area (I don't know who thinks up the names!) From here I can press D to download messages. TomCat then checks to see which messages are new since I last logged on, then creates a compressed file containing all of these. I then press Y to confirm that I want to download the messages and start to receive the file (in Terminal you use Terminal Receive Binary File). After a minute or so (depending on your modem speed) the file will have been received by your local computer and you can press G to say Goodbye. Back at the DOS prompt I load SLMR and it then shows me all the messages that have been picked up from the board. I can type replies if I want to or add new messages and when I've finished the program zips up all my replies and leaves them ready for the next time I go onto the board. The TomCat areas has a choice to upload replies and this is normally even quicker than downloading messages (unless you write very long replies!). Since I started using SLMR I find that I spend less than 5 minutes a day on the phone to Abingdon which costs about 20p via Mercury and 25p through BT.

I've just downloaded a program called Panther from the BBS which is a free communications program. It's very quick (most DOS comms programs seem to be quicker than the Windows ones but you can't play Solitaire while the messages are being downloaded!) and easy to use. If you would like a copy of Panther and SLMR then please write to me and ask for them, enclosing a formatted disc.

I've published a second, lengthy article which I hope is relevant to A Level Computing in this issue. The one on sorting in the last issue got more response from readers (all positive!) than anything I've previously published so I think there is value in doing it. Please remember that this is ***your*** magazine - you don't have to write for it but if you don't write or phone to say what you would like to see then I won't know what you want!

I've not left enough space for a proper hints and tips section in this issue but one thing that I think quite a few people want to know concerns controlling where users save their work on a standalone Windows system. For example, you may want people to save their work onto their own floppy disc rather than onto the hard disc but you don't want to start telling them how to use a computer by explaining drive selection boxes and so on. If you have Windows 3.1 then the properties settings for any program have a line called Working Directory. Setting this to A: causes the

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program to look at drive A: when you first start it and save files there unless the user specifically changes it.

If you're looking for professional software to run on your computer then the major office suites are certainly worth looking at. Borland Office (which includes Word Perfect, Quattro Pro and Paradox) is available for £180 and Microsoft Office (including Word, Excel and PowerPoint) costs about £200 (both are educational prices but it's worth noting that many educational deals are not only available to schools but also to anyone in full time education). I'd love to be able to swap out PowerPoint and put Paradox in its place but this is not possible! You can, however, add Access to the Microsoft bundle for an extra £50. On the subject of databases, Software Publishing Corporation have just announced that no further development will take place on Superbase. It's still a very competent database, though, especially if you are used to Superbase 4. If you are looking for something which is programmable but does not need as powerful a computer as Access or Paradox then it might be worth buying Superbase. Corel Corporation continue to bring out software at amazing prices; they have recently acquired Ventura Publisher (which is comparable to Aldus PageMaker or Quark Xpress) and updated it slightly, included masses of clipart and fonts and sell the whole lot for just £169. For more details of all of these, contact Pugh Computers on 0974 202362.

I was impressed when I first saw the Oxford English Dictionary on CD ROM but I haven't bought it because it's quite expensive (£495). I was pleased to receive details of a range of Oxford Reference Software products, including the Concise Oxford Dictionary at just £50 or £78 for the Dictionary and Oxford Thesaurus together. There's also a series known as Reference Shelf. Each of the packages in the series include a set of related programs. For example, the Writer's Shelf includes the Pocket Oxford Dictionary, the Dictionary for Writers and Editors, the Guide to English Usage, the Minidictionary of Quotations and a Compact Encyclopedia all for £75. More details of all the Oxford products are available from the Oxford University Press, Walton Street, Oxford, OX2 6DP Tel: 0865 267979.

Spell checkers can be very useful. I'm quite good at spelling but not very good at typing so I always try to check my work. If you've ever used one you'll know that they sometimes come up with wholly inappropriate suggestions but the one in PageMaker is particularly strange! I can't find any way of making it accept words like 1Mb (straightforward in Word - you just tell it to ignore all words with numbers in them) or to believe that I can put brackets in the middle of a sentence. It's most intriguing comment on this article is not that some words are unrecognised but that "downloading" is an *improper* word!

And finally.. I've been sent an interesting prinout from the program called XINFO (which was first released with the AX and can be used to tell you such things as what kind of discs are installed, the speed settings for the serial ports and so on. Runnning version 1.00V on an S-Series 486 gives the interesting idea that it contains a 74MHz 80386 chip!

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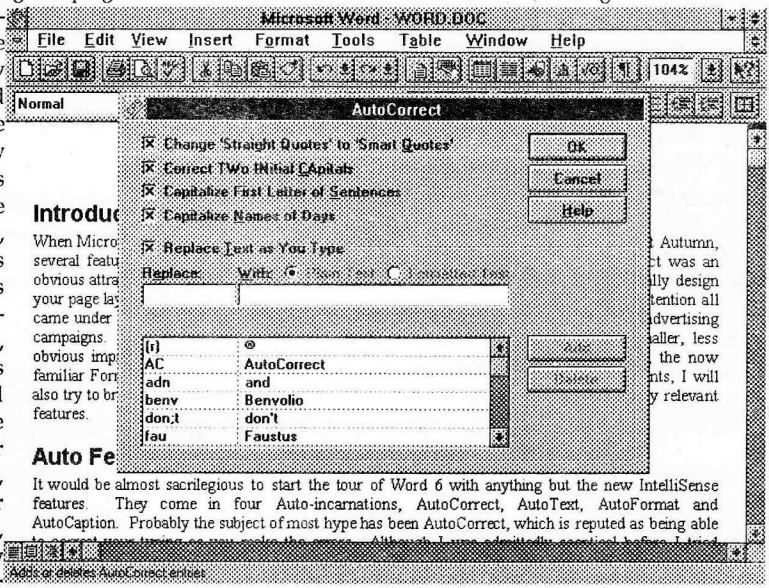
Word for Windows 6

Simon Gosney

Introduction

When Microsoft showed-off the first pre-release version of Word version 6 for Windows last Autumn, several features of the new product attracted attention. The well-publicised AutoCorrect was an obvious attraction, Wizards made their first Word appearance, the program could dynamically design your page layout for you, etc. The features of the new version that attracted most of the attention all came under the IntelliSense heading, and were the subject of numerous major Microsoft advertising campaigns. What tended to become relatively obscured by the new features were the smaller, less obvious improvements, such as tabbed dialogue boxes for simplified, speedier navigation, the now familiar Format Painter, etc. Whilst this article will highlight the major new enhancements, I will also try to bring out the less prominent improvement.


Microsoft Word - WORD.DOC
File Edit View Insert Format Tools Table Window Help
Normal
AutoCorrect
Change 'Straight Quotes' to 'Smart Quotes'
Correct TWo INitial CApitals
Capitalize First Letter of Sentences
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It would be almost sacrilegious to start the tour of Word 6 with anything but the new IntelliSense features. They come in four Auto-incarnations, AutoCorrect, AutoText, AutoFormat and AutoCaption. Probably the subject of most hype has been AutoCorrect, which is reputed as being able
Adds or deletes AutoCorrect entries

Auto Features

It would be almost sacrilegious to start the tour of Word 6 with anything but the new IntelliSense features. They come in four Auto-incarnations, AutoCorrect, AutoText, AutoFormat and AutoCaption. Probably the subject of most hype has been AutoCorrect, which is reputed as being able to correct your typing as you make the errors. Although I was admittedly sceptical before I tried AutoCorrect, in practice I found that it worked well. Certainly, there are particular words that I habitually misspell in the same manner, and the excellent Word spell-checker can add these mistakes, along with their corrections, to AutoCorrect's repertoire at the click of a button. However, AutoCorrect is more than just an automated find and replace tool for common spelling corrections. It has a variety of other uses, one of the

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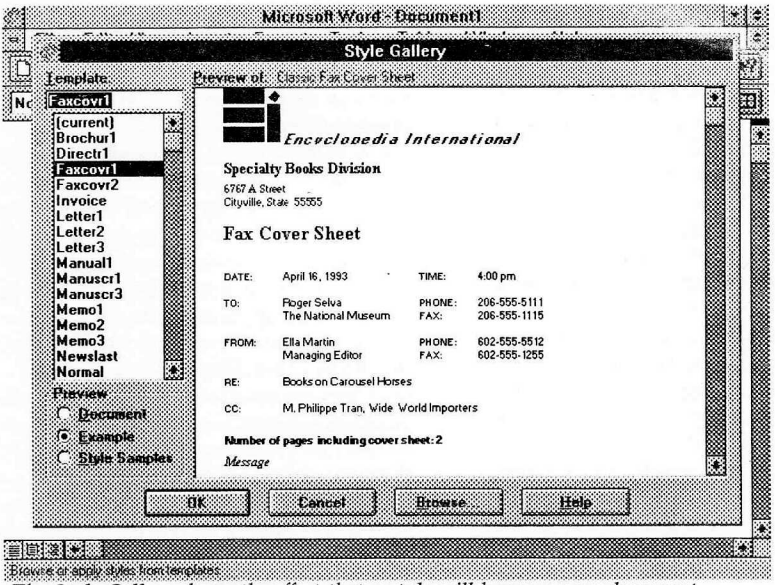
most useful being the ability to abbreviate long words or phrases, eg asap could be set to be replaced with as soon as possible. Other facilities include SmartQuotes, the ability to have speech marks and inverted commas pointing in the correct way (“” ”). Automatic capitalisation of initial letters of sentences is also catered for, as is the automatic capitalisation of initial letters of days of the week. AutoCorrect can also amend two initial capitals, which would be useful for many typists who have a slightly sticky shift key like mine (I think it was the Pot Noodle that caused the problem!). All these are options on a dedicated AutoCorrect dialogue, and so can be independently enabled and disabled. AutoText is the new name for the Word for Windows v2 Glossary. Anything in a Word document can be assigned to an easy-to-remember AutoText abbreviation and when this is entered, a click on the AutoText button on the Standard toolbar (more on toolbars later) inserts the entry into the current document. This function is useful for the commonly-used items such as letter-heads and logos, and items where typing errors could be crucial, such as in legal contracts, etc. AutoFormat is a new feature of Word that combines templates and styles to attempt to improve the page layout of your document. I say attempt because my letter-head is produced using an AutoText entry, and every time I run AutoFormat, it insists on changing the font of the heading, which considerably worsened the design. This can be overridden if the font has been changed using a style, but if just formatting has been used AutoFormat can degrade the design of your document. Fortunately, it is possible to step through the changes, allowing



The Style Gallery shows the effect that a style will have on your document

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unsatisfactory ones to be reversed, while the improvements can be retained. AutoFormat includes a large range of document styles, so you can choose an appropriate model for each different document.

AutoCaption is another new feature of Word that can save large amount of time if you frequently have tables, graphs, equations or other objects in documents. AutoCaption can, predictably, add captions to these objects with specified prefixes for each item, and then automatically number them. Cross-references can be created to refer to captions, headings, tables and other items simply by selecting from a list in the Cross-Reference dialogue.

As well as the Auto- features, there is the debut of Wizards in Microsoft's flagship Windows word processor (just in case you are wondering, the other is Creative Writer for 8-14 year olds). The Word Wizards take the form of dynamic templates, as they are loaded in the same manner of a template and simply ask you a series of questions related to the selected wizard. For example, there is a calendar-creation wizard that asks questions such as required calendar-style, orientation and the range of the calendar, and then goes on to produce a document containing the requested calendar. There is a selection of 10 Wizards, agenda, award, calendar, fax cover, letter, memo, newsletter, r,sum, (CV), table and legal pleading paper. Most of these set up the page(s) suitably for the specified document, with customisations such as names. However, the letter Wizard includes several form letters, so now you do not need a word processor so that you can write letters, your word processor will write them for you! Also under the Wizard title, but activated through an existing document, is the TableWizard. This useful device has a large variety of pre-set designs that can be used to quickly and easily style a table. Once you have selected your required table design, TableWizard displays a preview, and you can choose which formatting options to apply, from borders, font, best fit, shading and colour. This makes a presentable table only a few clicks away.

New Editing Features

Some of the things that make this latest version of Word even more pleasant to use than the previous version are new and revamped features that help make a document's editing a pleasure. The Undo button has been replaced by a Multi-Level Undo button with an attached drop-down list of recent alterations to the document. Multiple selections of items to be undone are available, making this method of implementing a multi-level Undo work very well, and I am sure that this feature will reduce the amount of hair pulled that is pulled out by Word devotees. To complement the revised Undo, there is also a Redo button similarly equipped with a drop-down list, which repeats, in the same manner that Undo suppresses, changes to the document. IntelliSense has made an appearance in the new easy-editing, because if you leave on the Smart Cut & Paste option, Word will automatically check to see whether, for example, spaces need to be inserted or removed to fit in with the punctuation, e.g. if you delete some text in a bracket and leave a space before the closing parenthesis, the space will automatically be deleted. This is a helpful feature that makes

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standardly-spaced punctuation easier. Word for Windows v2 supported drag and drop editing of text within the same document. Word 6 has now taken this a step further and it is now possible to drag and drop text between two areas in the same document, between two Word windows, and between Word and another application. Obviously, not all current applications support this feature, but it helps to integrate other new-generation Microsoft products such as Excel 5 and PowerPoint 4. The final major improvement to the Word editing system is the renovated Find and Replace. Some skulduggery was required to persuade earlier versions of Word to search for non-printing characters. Microsoft have thoughtfully provided a comprehensive list of non-printing characters that can be quickly inserted into the search string. Word 6 for Windows is the latest Microsoft application to incorporate the new OLE 2 standard. The applets that are supplied with Word are a mixture of OLE 1 and OLE 2; Equation Editor and Microsoft Draw are OLE 2, whilst Microsoft Graph is still OLE 1. Word itself is an OLE 2 server, therefore you can insert an active Word document into another OLE 2 compliant application.

Formatting & Style Options

You have seen it in Ami Pro, you can see it in WordPerfect, you can see it in Word. Microsoft are the latest company to purloin the Format Painter, which will surely soon become just as standard as the cut, copy and paste buttons that it sits next to on the Standard toolbar. I wonder if Lotus ever thought of a patent? Anyway, for those of you who have not heard about or seen this wonderful device, the Format Painter transfers the exact formatting information of initially-selected text to the latterly-selected text. If the Format Painter button is single-clicked, the operation is carried out and then normal cursor operation is resumed. If the button is double-clicked, multiple selections of text can be formatted, one after the other, until the button is de-selected. This tool can save large amounts of time, especially if you have a large number of fonts on your system. A very useful and time-saving feature that is new in Word 6 is the Drop-Caps creator. It is possible, with about four clicks, to create a whole dropped word or a capital that is either dropped down in the text or hanging in the margin. The number of lines to drop the capital can be specified, as can the font size and face. The capital is created in a frame that can be sized in Page Layout mode for complete control. Adding borders and shading is very simple in the new version. You simply select the Borders toolbar, select the items to be bordered or shaded, and click the relevant drop-down list to select the required shading or line width. This is much faster and easier than having to go through a dialogue, as the results can be viewed immediately and quickly adjusted. As well as the familiar paragraph styles, there are now also character styles. These are useful when a certain combination of formatting is often required, such as 16pt Arial Bold Italic. As these, as well as paragraph styles, can be assigned to shortcut keys, menus and toolbars, formatting can be carried out quickly and accurately.

New Interface

The Word for Windows v2 interface, whilst pioneering when released, was beginning to look a little dated and, as

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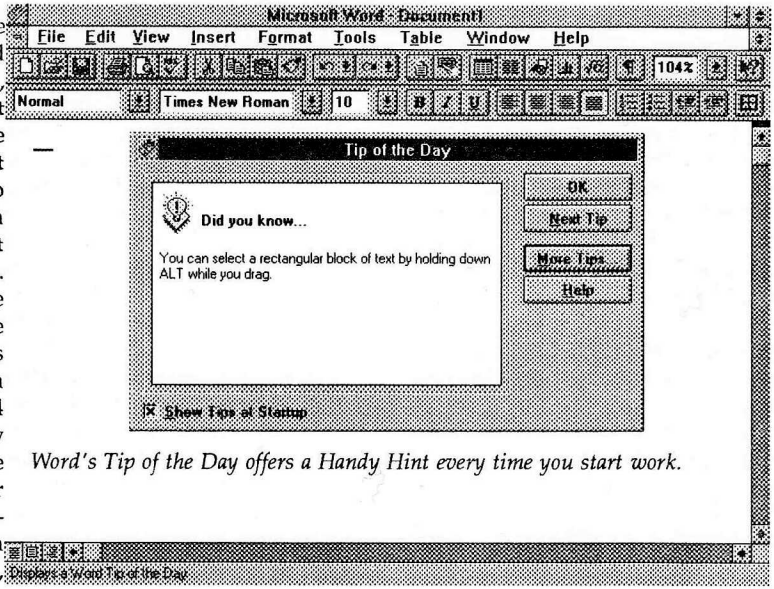
one would expect, Microsoft have brought it up to date with the latest release. The multiple toolbars first seen in Excel 4 now make their appearance in Word, complete with the user-configurable bitmaps that were sorely missed in the previous version. The supplied toolbars are completely customisable, and new bars can be created. Fonts and styles can be assigned to buttons, making complex formatting just a click away. Another new toolbar feature is ToolTips. These are especially useful for new Word users, as when you point at a button and hold the pointer over it, a caption appears explaining the button's caption. Another feature that has been taken from Excel to Word is the provision of context-sensitive right-button menus. These menus alter depending on where the cursor is when the button is clicked. For example, if text is highlighted, a click of the right-button brings up a menu with the three clipboard options, plus items to bring up the Font, Paragraph and Bullets & Numbering dialogues. These menus are very useful for quickly accessing functions that are relevant to different Word objects. A very simple, but equally useful, addition to the Word horizontal scroll bar are three buttons that select Normal, Page Layout or Outline view. The intuitive positioning of these three miniature buttons leaves extra space where they would have been on the toolbar, allowing more functions to be accessed easily, without extra screen clutter.


Microsoft Word - Document1
File Edit View Insert Format Tools Table Window Help
Normal
Times New Roman
10
Tip of the Day
Did you know...
You can select a rectangular block of text by holding down ALT while you drag.
OK
Next Tip
More Tips
Help
Show Tips at Startup
Displays a Word Tip of the Day

Word's Tip of the Day offers a Handy Hint every time you start work.

Is it Worth the Upgrade?

For a typical Word for Windows version 2 user, it is possible that some trepidation may be experienced when deciding whether to take up Microsoft's generous offer of a cheap (well, comparatively) upgrade to the new product. This user of the previous version was probably happy enough with the program, the only irritant possibly being the lack of a working

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word counter. Should this reasonably-content user upgrade? One thing that all seasoned Word v2 users would immediately notice is the rearranged menu structure. Microsoft has said that this was necessary to provide greater consistency over its major Office applications, and this is a good thing, and it is relatively easy to adapt to the new structure, and the benefits of the re-designed interface are gained. However, our happy Word user may be worried about possible bugs in a new major release, and I am happy to be able to offer reassurance. Word 6 seems to be a very stable release, and credit must go to Microsoft for managing to release an almost bug-free version. Another possible worry is the complexity of the new program: will this require a Pentium to run at a reasonable speed? Reassurance can also be given on this point, as Word 6 runs reasonably well on a 386SX-33 with 4Mb of RAM. A typical installation requires around 15Mb of hard disk space, a full installation 24Mb and a minimum installation 6Mb.Can it Beat the Competition?At around the same time that Word 6 for Windows was released, WordPerfect released WordPerfect SIX.0 for Windows. I was initially impressed with this product, as it appeared to have a number of features that I liked. However, I was seriously put off by the fact that my 386SX-33 with 4Mb of RAM would hardly run WPWin at all, and my 486SX only ran it slowly. A minimum specification of a 486 for a wordprocessor? If this was not bad enough, when WPWin did run it crashed with such regularity that when I received Word 6, it was installed and being used on both machines by the end of the day. If you are a serious user of word processors, and you like the Windows environment, then Microsoft are the company that deserve your custom with the best type-writer imitator so far, Word 6 for Windows.

For more information contact: Microsoft, Microsoft Place, Wharfedale Road, Winnersh Triangle, Wokingham, Berkshire. RG11 5TP Tel: 0734 270000

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FlexiDATA

Ken Maynard

FlexiDATA is a well-featured simple-to-use database whose only major fault is that it wasn't available years ago when it was first needed! It is incredible that schools have had to struggle for so long without a sensible data handling tool. Programs at both ends of the sophistication scale have been pressed into service. At the lower end they are weak or so awkward that no-one warms to them. At the upper end ponderous commercial tools offer far more yet miss the fundamental classroom mark by being difficult for children to set up and even lacking some standard graphs.

FDATA, as it is called on the disk, has a Windows look about it but does not require Microsoft Windows. It is driven easily from the keyboard but a mouse is preferable and makes resizing and moving graphs, text and tables about the screen child's play. It is a friendly program with few limitations from the class-room point of view and should oust those we've struggled with for so long, particularly where existing datafiles can be transported across without breaking copyright agreements. It reads QUEST, GRASS and SID files while CSV files can be both imported and exported.

This is not the place to list all of FDATA's features. Most, like searching and sorting, can be taken for granted. Some I particularly welcome are: the simplicity of creating a new datafile and of editing it, the ability to have a whole class entering data for the same file on a network, the ability to read other file formats, the instant display of 'screens' having graphs, tables and explanatory text alongside each other - even from more than one datafile. These screens print quickly to a variety of printers, including the Integrex 132 for colour, and can be stored as bit-maps for transfer to other packages (which is how the screen shots were incorporated here).

Especially attractive features not normally found in school programs are the field types MULTI-CHOICE

Age	Injury	Transport	Weather
20	Slight	Car	Fine
61	None	Bus	Rain
7	Slight	Bus	Rain
19	None	Car	Rain
18	Serious	Foot	Rain
38	None	Car	Fine
6	Slight	Foot	Fine
18	Serious	Motor cycle	Fine
59	None	Car	Fine
31	Slight	Cycle	Fine
18	None	Car	Fine
6	Slight	Cycle	Fine
60	None	Car	Fine
5	Slight	Foot	Fine
22	Slight	Car	Fine
22	Slight	Car	Fine

119 records

Breath test	Frequency
Not required	52
Negative	21
Positive	4
Refused	1
[blank]	41

5 values

Age	
Mean	30.8
Count	115
Minimum	1
Maximum	76
Range	75

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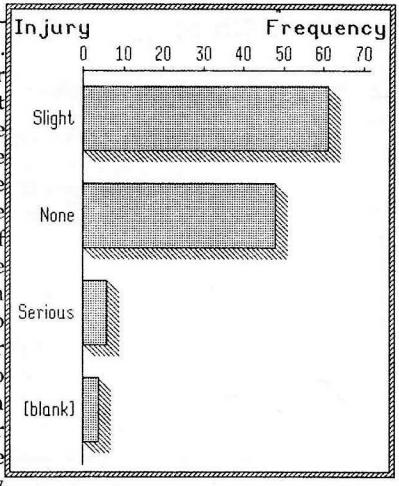
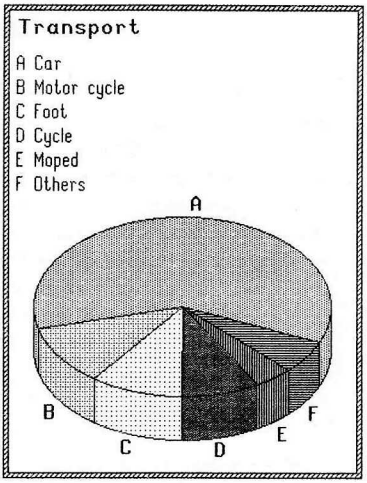
and CALCULATED. The former allows a list of possible entries to be typed at the design stage (or later if some have been forgotten) so that the user has only to enter a single letter for it to be immediately expanded into the full phrase - no cryptic codes on the screen. Not only is this fast, and fun, but it guarantees uniform spellings! This is nicely exploited when a 'foreign' file is imported and the field type changed from text (default) to multi-choice. The program scans the field contents and automatically compiles the entry list if it is not excessive. The calculated field has trig functions and square root built in which should give scope for mathematical 'investigations', particularly in conjunction with the field types SEQUENCE and RANDOM. As it comes from the same stable as FlexiWRITE it uses the same keys to generate accented characters and may find favour also with linguists.





FDATA is a most welcome addition to the range of programs available in the classroom and, what is more, is much appreciated by children who actually WANT to 'play' with it because control is intuitive and the displays so attractive.

Of course no program is perfect and I have compiled a short 'want list'. At present one cannot sort data into the order of the multi-choice lists, the decimal place function rounds correctly but does not add trailing zeros when appropriate and, lastly, I should like a couple more statistical tools included in the calculated field functions. These are truly minor quibbles but, if others feel they would improve the package, they will probably appear in a later version.

Lastly, the documentation is good; the book contains both a reference to each feature and a tutorial. However, help is instantly available on the screen if required and this is likely to be used first by most people.

Sample prices:

Single machine:	£36
Network licence (16):	£108
Site licence (Primary):	£90
Site licence (Secondary):	£180

FlexiDATA works on Nimbus 186 and above and all IBM compatible machines. Contact: Flexible Software Ltd, PO Box 100, ABINGDON, Oxon OX13 6PQ Tel: 0865-391148

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Excel and PC Globe

Steve Rochford

One of the most useful programs which we have in school for Geography is PC Globe. This gives maps for every country in the world and an enormous quantity of statistical information for each country. While it's possible to print out the graphs and maps you can't easily get the information into a form where you can select the bits that you want and annotate them so I've been investigating how Excel can be used to make more of the data.

PC Globe (and many other packages) can write data to a plain text file and this can be read by Excel (or Word if you just want the words and numbers). One of Excel's less obvious features is Data Parsing and this is what I have used to make better use of the data. When you load the text file into Excel you find that everything is in column A, even where there really should be several columns of numbers. To access the data you just highlight the rows from column A in which you are interested and then choose Data Parse. A dialogue box pops up and you normally just click Guess and then OK. What Excel does is try to work out where the row should have been split into separate columns and then splits it. Occasionally it doesn't quite guess right - you can then just Undo the Parse and try again, this time manually adjusting the split positions (which are marked by [and])after you have guessed. For example, if you parse a line like:

January 81 2 6

Then it will split properly into 4 cells but if you try and parse

Religions Anglican 57 %

then you get 4 cells with % on its own. With a bit of practice you can spot what's going on and adjust the split positions quickly to get perfect results.

What can you do with the data? Well, having got the numbers separated it's much easier to do comparative charts (eg breakdown of religions for the UK and the USA) or to compare climate data for where you live with one of the cities available in PC Globe (only Belfast, Edinburgh and London in the UK). It's also a good source of data for teaching graph drawing skills - I always prefer to let the pupils practice with "real" numbers, rather than ones which have been just made up.

As an example, take the population age distribution data (table 1) and create a population pyramid from it. First of all the data has to be parsed to separate the percentage from the age. The resultant block is

Age Distribution:	
% Male 0-9	6.4 %
% Female 0-9	6.0 %
% Male 10-19	7.6 %
% Female 10-19	7.2 %
% Male 20-29	7.9 %
% Female 20-29	7.7 %
% Male 30-39	7.0 %
% Female 30-39	7.0 %
% Male 40-49	5.9 %
% Female 40-49	5.8 %
% Male 50-59	5.3 %
% Female 50-59	5.5 %
% Male 60-69	4.7 %
% Female 60-69	5.4 %
% Male 70+	3.9 %
% Female 70+	6.7 %

Table 1

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then sorted to get all the female figures first and then the male figures. The numbers for the men are then cut out and pasted next to the female figures. Finally use Formula Replace to get rid of the "% Female" string (just replace it with a blank). The data now looks like Table 2

If this is now graphed the chart looks like figure 1. The bars for the men should point to the left. To do this they need to be made into negative numbers. The easiest way to do this is to click in a cell next to the real figure and enter a formula which is -1* [cell reference]. Fill this down to the bottom of the block and the numbers will become negative. Highlight the new numbers then use Edit Copy followed by Edit Paste Special to paste just the values back on top of the original numbers.

0-9	6.00%	6.40%
10-19	7.20%	7.60%
20-29	7.70%	7.90%
30-39	7.00%	7.00%
40-49	5.80%	5.90%
50-59	5.50%	5.30%
60-69	5.40%	4.70%
70+	6.70%	3.90%

Table 2

This looks close; using Chart Add Overlay and then Format Overlay to convert the overlay to a bar chart gives a graph which looks like figure 2 and this just needs labelling to be fairly accurate.

Overlays are a really useful part of the charts in Excel and they are easy to misunderstand (because the defaults are not helpful!). Basically, using an overlay allows you to take one or more of the data series from your graph and either plot them in a different style or in the same style but perhaps with different axes. Table 3 shows the

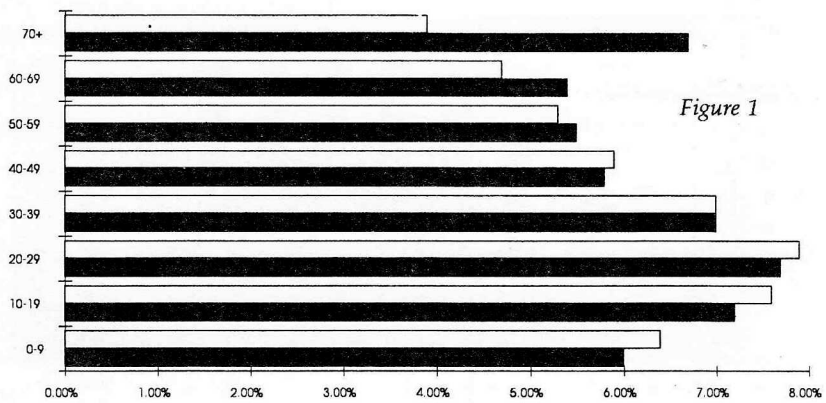

Figure 1

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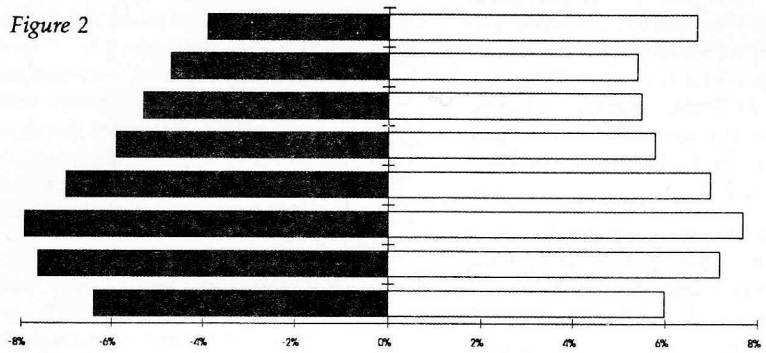
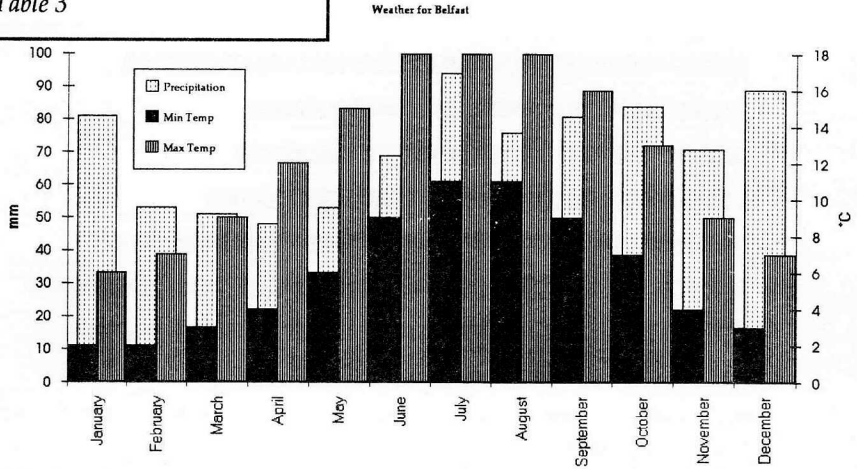
Figure 2



January	81	2	6
February	53	2	7
March	51	3	9
April	48	4	12
May	53	6	15
June	69	9	18
July	94	11	18
August	76	11	18
September	81	9	16
October	84	7	13
November	71	4	9
December	89	3	7

Table 3

climate data for Belfast - if all this data is put on the same chart then the precipitation bars are much bigger than the temperature and so the graph is hard to see. Using an overlay allows you to have separate scales for the two different kinds of data and makes it much easier to understand.



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Numerical Methods

Howard Toon

Introduction

The 'A' level Mathematics and Computing syllabus' contain various topics for Numerical Methods. This set of notes was designed to accompany a short course, organised for the Lancing College Mathematics Department, based on these topics. Some additional items have been added to illustrate other useful techniques which are simple yet powerful.

With the growth in the availability of electronic calculators and personal computers, numerical solutions to mathematical problems are becoming more attractive than the more traditional methods. In addition to convenience, however, it must be noted that a numerical solution is frequently the only one available. Even fairly simple functions such as $\exp(-x^2)$ are impossible to integrate by analytic methods.

The notes that follow contain only an outline of each method and do not include the full derivation or even justify it fully. If this is required, any of the many textbooks on Numerical Analysis will suffice.

The Bisection Method for Solving Non-linear Equations

If we have some continuous function, say $y = f(x)$, then we are often in the position of needing to find a value for x such that $f(x) = 0$. The bisection method makes use of the rather obvious theorem that; if a continuous function is negative at some point and positive at another, then it must be zero at some point in between. The mid-point of this interval gives us an approximation to the root to a known maximum error i.e. half the interval width.

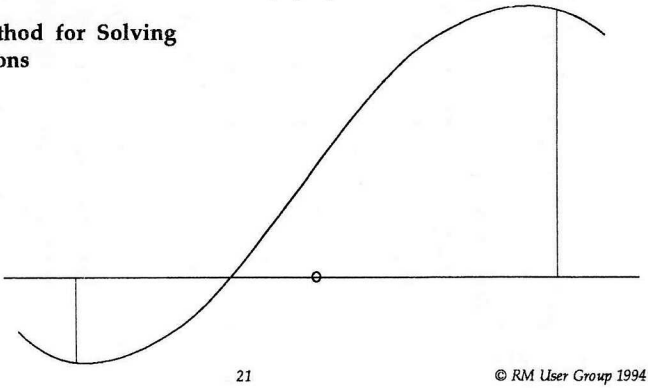
Once such an interval has been identified, we can find the value of the function at the mid-point of the interval and, by inspection of the sign of the function at this point, choose a smaller interval containing the root of the function. Each time the interval is bisected in this way, the maximum possible error in our approximation to the root is also halved.

eg Solve the equation: $x^3 - x^2 + 7 = 0$

First we tabulate the function to find a suitable interval to investigate;

x	f(x)
0	7
-1	5
-2	-5
-3	-29

We now have the interval required {-1, -2} and can write down our first



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RESEARCH MACHINES USER GROUP

Annual General Meeting and Training Day of The RM User Group will be held on Saturday 7 May 1994 at Latymer Upper School

King Street
London W6 9LR

by kind permission of the Headmaster

Programme

10.15 - 10.45	Arrival - coffee and a chance to talk to exhibitors
10.45 - 11.30	Annual General Meeting. If you would like to be involved in helping to run the User Group then please phone one of the Committee to discuss it informally - you do not need to commit yourself at this stage!
11.30 - 1.00	Presentation by Research Machines plc - all the latest information and a chance to ask questions
1.00 - 1.45	Lunch. Latymer is close to the centre of Hammersmith which has a wide range of places to eat. Alternatively you are welcome to bring your own sandwiches and spend the time asking questions!
1.45 - 4.00	Training Session. During the afternoon there will be an opportunity to work in small groups to find out more about software which you want to learn to use. We hope to offer sessions both for those who are interested in learning about applications and about managing networks.

Getting there:
Latymer Upper School is in Hammersmith, West London. Some parking is available at the school but the best access is by tube. Take the District Line to Ravenscourt Park. Come out of the station and the main road outside is King Street. The school is on the far side of the road, across the zebra crossing.
For more information, phone Steve Rochford on 081 740 5642 or John Williams on 0789 269533

approximation to the root as -1.5 with a maximum possible error of ± 0.5.

If we now evaluate the function at the mid-point of the interval and inspect the result, we can build up the following table of values;

a	b	m		sign of f(m)
-1	-2	-1.5	+	(use upper half)
-1.5	-2	-1.75	-	(use lower half)
-1.5	-1.75	-1.625	+	(use upper half)
-1.625	-1.75	etc	etc	

After repeating the procedure 10 times, the root will be found to be

$x = -1.632 \pm 0.001$ (to 3dp).

The Newton-Raphson Iteration Method

Given some equation, f(x)=0, we can make some initial estimate of the root, say X_0, and then refine it by finding the point where the tangent from this curve at the point $\{X_0, f(X_0)\}$ cuts the x axis.

The gradient of this line may be calculated in two different ways.

1. From the right-angled triangle it is simply the height divided by the base. i.e. $\dfrac{f(X_0)}{X_0 - X_1}$

2. By differential calculus, the gradient is $f(X_0)$ so we have;

$$\frac{f(X_0)}{X_0 - X_1} = f'(X_0)$$

and, by re-arranging

$$X_1 = X_0 - \frac{f(X_0)}{f'(X_0)}$$

e.g. $\text{Cos}(x) + x = 0$

$f(x) = \text{Cos}(x) + x$

$f'(x) = 1 - \text{Sin}(x)$

$$X_1 = X_0 - \frac{\cos(X_0) + X_0}{1 - \sin(X_0)}$$

Using the starting value of 0, we have;

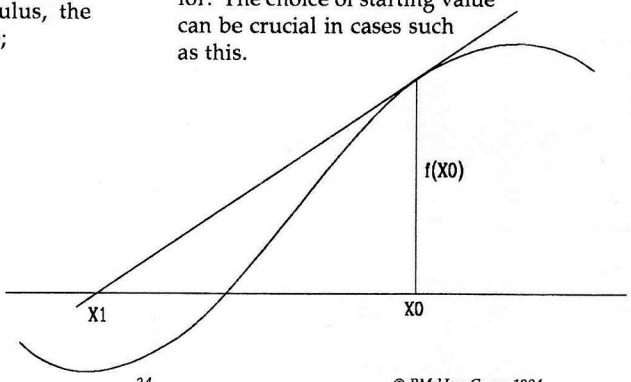
$X_0 = 0$
$X_1 = -1$
$X_2 = -0.7504$
$X_3 = -0.7391$

and all further values will be the same to 4sf.

This is obviously much quicker than the simple iteration formula method and has a far better success rate.

The draw-backs are that a greater amount of arithmetic is needed at each stage and, more importantly, the function must be differentiable.

Note: Although this method will almost always find a root, it may very well take one or two cycles to settle down. A more common problem is that the method will converge to a root other than the one being searched for. The choice of starting value can be crucial in cases such as this.



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Jacobi Method for Solving a Set of Linear Equations

The usual methods of solving simultaneous equations involve elimination and substitution or matrix inversions. When there are more than two variables, however, the matrix methods are little or no real value and the elimination methods become very tedious.

The Jacobi method is an adaption of the simple iteration formula method of section 1b. Each equation is re-arranged as an iteration formula for a different variable and, by repeated application, a solution may be found.

e.g. $10x + 2y + z = 13$

$3x + 12y + 2z = 17$

$x + y + 7z = 9$

we arrange these to give;

$x = \{13 - 2y - z\}/10$

$y = \{17 - 3x - 2z\}/12$

$z = \{9 - x - y\}/7$

We now choose some suitable set of starting values for x, y and z and use these new formulae to get new values. After repeated applications starting with $x = 0$, $y = 0$, $z = 0$ we have;

Cycle	x	y	z
0	0	0	0
1	1.30	1.42	1.29
2	0.89	0.88	0.90
3	1.03	1.05	1.03

Eventually, the true values of $x = 1$, $y = 1$, $z = 1$ will be achieved to within reasonable limits.

It is important to note that this method suffers from the same problems as the simple iteration formula method. The chances for success are improved if the original equations are first ordered such that their leading diagonal elements are larger than the sum of the other co-efficients in their row.

The following example, although very simple, illustrates this point.

Starting with the equations:

$x + 7y = 8$ $5x - y = 4$

$5x - y = 4$ $x + 7y = 8$

re-arrange:

$x = 8 - 7y$ $x = \{4 + y\} / 5$

$y = 5x - 4$ $y = \{8 - x\}/7$

starting with $x = 0$, $y = 0$ we have:

cycle	x	y	x	y
1	0	0	0	0
2	8	-4	0.8	1.0286
3	36	36	1.0057	0.9992
4	-244	176	0.9998	1.0000
5	-1244	-1244	1.0000	1.0000
6	8576	-6124	1.0000	1.0000
	increasing		stable	

Linear Regression - the Least-squares Method for Fitting a Straight Line Through a Set of Points

We often conduct experiments or obtain data which lead us to believe that there is some simple, linear, law connecting two variables. The usual technique is to plot the points on graph paper and, by inspection, draw the

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best straight line through them. Two different cases are considered;

(i) Intercept at the origin

If we know that the line must pass through the origin, the line is easily fixed. We can show relatively easily that the best line through a set of points must go through the mean of the data i.e. the point (X, Y) such that X is the mean of the x's and Y is the mean of the y's.

The equation of such a line is simply

$$y = \frac{X}{Y}x$$

e.g. The following results were obtained for the extension of a horizontal spring for the given load.

Load (g) (x)	Extension (mm) (y)	
10	23	
20	37	
30	60	The means are
40	83	X=30, Y=60
50	97	

Since zero load will, in theory, give zero extension, we assume that the line must pass through the origin. The equation of the best line is, therefore:

$$Y = \frac{60}{30}x$$

i.e. $y = 2x$

This trivial example may be extended, as shown below, to the more usual situation where the intercept is not known.

(ii) Intercept not known

When the intercept on the y axis is not known, the least squares method is usually adopted. In this method we assume that the independent variable (x) is measured accurately and any errors which arise are as a result of problems in the dependent variable (y). We can carry out a set of calculations on the data to find a line such that the sum of the squares of these errors is as small as possible (the least squares method) and the following formulae can be shown to satisfy this condition:

$$m = \frac{\sum xy - \left(\frac{1}{n}\right)\left\{\sum x . \sum y\right\}}{\sum x^2 - \left(\frac{1}{n}\right)\left\{\sum x\right\}^2}$$

$c = Y - m.X$

where:

n is the number of data pairs
Σx is the sum of the x's
Σy is the sum of the y's
Σxy is the sum of the x.y products
Σx^2 is the sum of the squares of the x's
Y is the mean of the y's
X is the mean of the x's

e.g. The following results were obtained for the length of a vertical spring being measured with different loads.

Load (g) (x)	Length (mm) (y)
10	63
20	68
30	82
40	91
50	97

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These give the following values:

$n = 5$
$\Sigma x = 150$
$\Sigma y = 401$
$\Sigma xy = 12940$
$\Sigma x^2 = 5500$

and substituting these into the formulae gives:

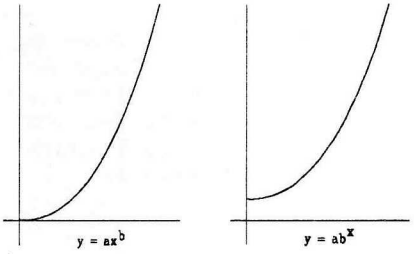
$m = 0.91$
$c = 80.2 - \{0.91 * 30\}$
$c = 52.90$

So we choose, as our best line;

$y = 0.91x + 52.90$

The Best Curve Through a Set of Points

The least squares method may be extended to deal with polynomials of second or higher order although the arithmetic becomes even more tedious. One group of curves, however, is easily dealt with by making only minor changes to the above method. These are the simple power functions such as $y=ax^b$ and $y=ab^x$.



(i) $y = ax^b$

If we take the logarithm of each side of this equation we have:

$\log(y) = b.\log(x) + \log(a)$

and if we compare this with the straight line equation,

$y = mx + c$

it is seen that we need only scale the input values by taking their logarithms to be able to use the least-squares method. If we do this then the results of our calculation would allow us to calculate the value of a from $\log(a) = c$ and the value of b from the equation $b = m$.

e.g. The mean distance from the Sun and the mean time for one solar orbit of each of the planets is shown in the table below.

Planet	Mean Distance from the Sun (Astronomical Units)		Mean Time of one orbit (Earth Years)	
	Value	log.	Value	log.
Mercury	0.39	-0.94	0.24	-1.43
Venus	0.72	-0.33	0.62	-0.48
Earth	1.00	0.00	1.00	0.00
Mars	1.52	0.42	1.88	0.63
Jupiter	5.20	1.65	11.86	2.47
Saturn	9.54	2.26	29.46	3.38
Uranus	19.19	2.95	84.02	4.43
Neptune	30.07	3.40	164.80	5.10
Pluto	39.52	3.68	248	5.51

These results have been plotted on the graph on page 29 and show the typical shape of a curve with a formula such as $y = ax^b$.

Using the value for the logarithms in the table above we have the following scaled values to work with:

$n = 9$
$\Sigma x = 13.09$
$\Sigma y = 19.61$
$\Sigma x^2 = 42.80$
$\Sigma xy = 64.17$

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$$m = \frac{64.17 - \{13.09 \times 19.61\}/9}{42.80 - \{13.09 \times 13.09\}/9}$$

m = 1.50 (2 dp)
c = { 2.18 - 1.5 x 1.45 } /9
c = 0.00 (2 dp)

substitute into the scaling equations described above, we have the following results:

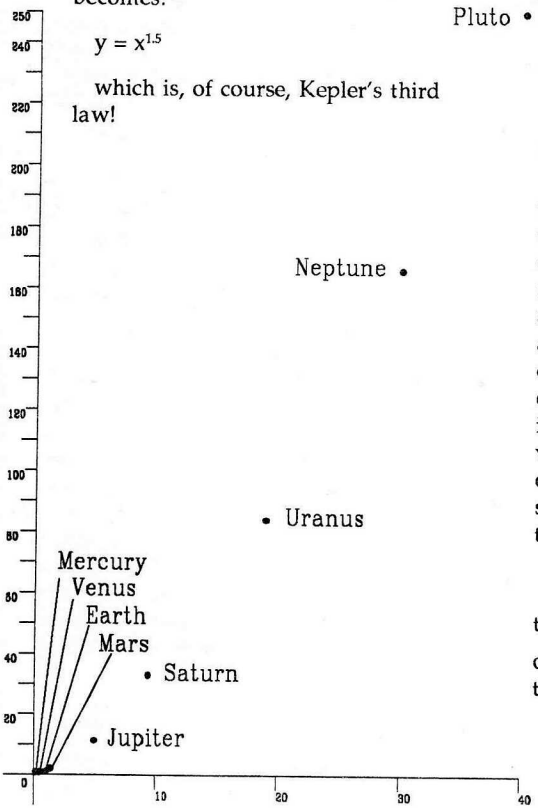
a = 1

b = 1.5

and the suggested equation to describe the original data values becomes:

$y = x^{1.5}$

which is, of course, Kepler's third law!



(ii) $y = ab^x$

If we take the logarithm of each side in the equation we obtain:

log(y) = log(b).x + log(a)

and if we compare this with the straight line equation:

y = m.x + c

we can see that the scaling required here is merely to take the logarithm of the y values.

Once the results have been calculated, the required values for a and b may be obtained from the scaling formulae:

c = log(a)

m = log(b)

Simpson's Rule for Integration

The main problem with the trapezium and mid-point methods is that they each try to approximate the curve by straight lines. If a very large number of straight lines are used, the accuracy is reasonable but then the arithmetic becomes very tedious. A careful inspection of the results obtained will, however, reveal an interesting pattern. In all cases the values from the two methods fall on opposite sides of the true value and some averaging method should, therefore, yield better results.

For Simpson's Rule we choose to take $\frac{1}{3}$ of the trapezium value and $\frac{2}{3}$ of the mid-point value. If we look at the single interval answers, they were:

Trapezium: 92

Mid-point: 76

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Simpson's Rule:

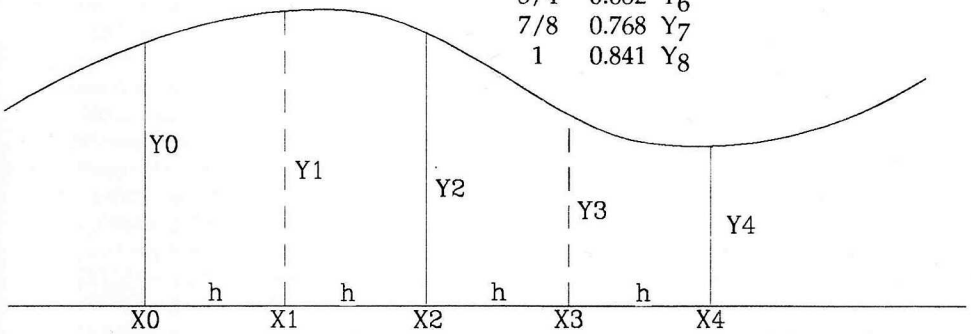
$$\text{The area} = \frac{1}{3} \times 92 + \frac{2}{3} \times 76$$

The area = 81.33' which is the correct answer!

This accuracy will not be repeated for higher order polynomials or transcendentals but Simpson's Rule will usually be a far better method than the other two and it is fairly easy to derive a formula for the method. With two intervals, for instance;

$$\text{Trapezium Area} = \frac{\{Y_0 + Y_2\} \times 2h}{2} + \frac{\{Y_2 + Y_4\} \times 2h}{2}$$

Trapezium area = $h * \{Y_0 + 2Y_2 + Y_4\}$



Mid-point area = $\{2h * Y_1\} + \{2h * Y_3\}$

Mid-point area = $h * \{2Y_1 + 2Y_3\}$

Simpson's area = $\{h/3\} * \{Y_0 + 2Y_2 + Y_4\} + \{2h/3\} * \{2Y_1 + 2Y_2\}$

Simpson's area = $\{h/3\} * \{Y_0 + 4Y_1 + 2Y_2 + 4Y_3 + Y_4\}$

where Y_0, Y_1 etc. are a sequence of y values equally spaced across the interval at a separation of h. The formula may easily be generalised, using a similar argument to that above and can be shown to be;

$\{h/3\} . \{ [Y_0 + Y_n] + 4.[Y_1 + Y_3 + Y_5 ...] + 2.[Y_2 + Y_4 + Y_6 ...] \}$

Because of the way the formula has been derived, it can easily be seen that there must be an even number of h's for it to be valid.

e.g. Calculate the area beneath the curve y = Sin(x) in the interval from x = 0 to 1 using 8 intervals;

x	y	
0	0	Y_0
1/8	0.125	Y_1
1/4	0.247	Y_2
3/8	0.366	Y_3
1/2	0.479	Y_4
5/8	0.585	Y_5
3/4	0.682	Y_6
7/8	0.768	Y_7
1	0.841	Y_8

Simpson's Area = $\{h/3\} . \{ [Y_0 + Y_n] + 4.[Y_1 + Y_3 + Y_5 ...] + 2.[Y_2 + Y_4 + Y_6 ...] \}$

Simpson's Area = $\{h/3\} . \{ [0 + 0.841] + 4.[0.125 + 0.366 + 0.585 + 0.768] + 2.[0.247 + 0.479 + 0.682] \}$

Simpson's Area = $\{0.125 / 3\} * \{0.841 + 7.376 + 2.816\}$

The full text of this article complete with program listings is available. If you would like a copy then please write to the Editor, enclosing a disc.

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Technical Tips

Stephen Sharrad

Drawn Out

Page 60 of the Winter 1993/1994 RM catalogue for accessories, software and peripherals contains a slight but significant mistake. The catalogue states that Windows Draw! is supported on the PC186. This is, unfortunately, incorrect. After installing, Draw! simply returns you to the desktop. If you wish to find a reasonable windows drawing program for the PC186 then try either MicroGrafx Designer 2.0, (flaky on a PC186 but runs) or CorelDraw! 2.0 (also flaky because of screen resolution). Both of these programs are obsolete but even so still do not work 100% on a PC186. Also note that if you intend to use Windows 3.0 with some of these applications then your machine must have firmware 1.32f or above (if on an 84-key machine).

Turn Your PC186 into a mean machine!

There are three types of memory available to a modern PC. The first is known as base memory - this is memory normally upto 640K. This memory is easy for the computer to use as the memory is contiguous - i.e. all of the base memory is on one page in a book. The second type of memory is called expanded memory (EMS) and is mainly used by older PC's. This memory has the disadvantage that, unlike base memory, it is not all on one page of a book, but it is addressable as a small block out of many pages. For the computer to read four EMS blocks (4*16k = 64k or one EMS page frame) it has to copy this block into the base memory. To then access a different block, it has to page the old block out back to save it, and then it pages in the new block. As you can see, this system is complicated and not as versatile as if the memory was in one page - i.e. contiguous. Mainly older applications will use this memory. The third type of memory is called Extended Memory (XMS) and this memory is in one page so it is easier for programs to use. Unfortunately, XMS requires more modern processors (i.e. 286 or above) and so extended memory is impossible on PC186.

Memory on the PC186 is a bit of a slight problem, as all PC186 users will know. There is not usually a problem with PC186 DOS applications but IBM applications sometimes need more memory. This is a snag because there is no way that you can stuff more memory inside your PC186 simply because the machine is not designed to use or address more than 1MB of main memory and 0.5MB as either a ramdisk or as a disk cache. However, the 80186 processor inside a PC186 will support Expanded (EMS) memory. This is of no great value if you cannot put more memory inside your PC186. However, you can simulate expanded memory by using disk media as a swap-file (386 machines and above do this when using Windows but this is slightly different. These machines are using 386 protected mode). The use of a swap file means that you can take your memory on a PC186 upto 33MB! (1MB base and 32MB simulated expanded - harddisk space permitting!) To create the swap-file on a PC186 you need MEMSIM32. This is a shareware (i.e. it has to be

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registered - the RMUG Library copying fee is separate from this) MSDOS device driver designed for use on a standard IBM compatible but it appears to work happily on a PC186. The device drive is installed in your config.sys. There are two versions of the device driver, an 8086 and 80286 version - both work on a PC186. For example, this line in your config.sys

```
device=memsim32.286 /c:\simemm
 .dat /100
```

would create 100 EMS blocks of RAM (i.e. 100 * 16k=1,638,400 byte) as the disk swap-file c:\simemm.dat (harddisk space permitting). If you do not have a harddisk then Memsim can be installed on a floppy disk system but with obviously reduced potential. If you do not state any switches in the config,sys for memsim then it creates the file MEMSIM.SIM and allocates 16 EMS blocks (16 * 16k = 262,144 bytes). Note that memsim will reduce you main or base memory by 64k - this is the area reserved for the EMS page frame and is used to page 4 blocks at a time of EMS memory in and out of the main memory). Also note that memsim is slow - this is because no harddisk can match the speed of real RAM.

The expanded memory created by this should be usable by most IBM applications running under SETPC in DOS mode. Unfortunately MEMSIM is not compatible with Windows 3 for the PC186. The IBM version of Windows 3 can be run on a PC186 if you are desperate (2 colour display with no mouse) and needs a special install procedure (phone me for details). However, some DOS IBM applications such as Turbo C++ will greatly benefit from the extra memory. Both MEMSIM and EASYTRAX (a freeware PCB designer capable of running on a PC186) should be in the RM User Group Software Library by the time you read this.

Tied Up

Following the Technical Tip article in the last edition of RM User, I can now offer PC186 cables at low prices: Internal Serial Module to Internal Serial (6 cm) £1.20, Aux Port/Internal Module/External Module to External Piconet (1 m) £2.20, Aux/Printer Bell Socket to RS232 (1 m) £4.20. If anybody requires any other type of PC186 cable then I can probably make one up.

Direct from RM

RM Direct! is RM's next day delivery service for computer consumables - from low and high density disks to mice. The prices are also quite competitive. (A 3-pack of PC186 mice costs just £99 excluding VAT). The disks are Maxell high-reliability media with which I have never had any problems. If you require anything from print toner, printers or DAT tapes then RM promise next-day delivery if you place your order before 4pm (3pm Fridays). Telephone 0235 826216 or Freexfax 0800 833872 - there is an advertisement on pages 8-9.

HELP

If anybody within the user group requires help on any IT based matter, then please do not hesitate to contact me - the telephone number is in the back.

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Some SPA Programs Reviewed

Maureen Wernham.

I am a very keen fan of SPA programs and was pleased to be able to review some that I had not used before. **BannerPlus** is described as 'much more than a banner program'. This is very true. It has much potential in a school for producing long or short banners or just posters. Not only will it print banners that are very long (length depends on what printer is used) but it will also print colour ones, if you have a continuous paper colour printer. These banners can contain any background one wants, from plain colours to Paintspa pictures. These pictures can be designed in Paintspa and when recalled as background they are repeated along the length of the banner. If pictures at each end are required the 'fetch as End' facility puts the designed picture at the left-hand end and a mirror image at the right-hand end. There are several backgrounds supplied on the disc, such as Teddy Bears, Flying Bats, Christmas Trees, Flowers, Balloons and also many different borders. The banner can be shortened or lengthened by pulling on 'The End' rectangle that is at the right-hand end. When you start up a certain length of banner is assigned but only the left-hand end is visible on the screen. A scroll bar facility allows the rest to be viewed. There is also an automatic pan under the Store menu which gradually moves the banner across the screen. Having decided on a background, other pictures can be placed anywhere on the banner. They can be moved, copied, deleted, flipped over etc. by clicking on them and only they react leaving background or other pictures untouched. This is a very useful facility. Of course writing is required on any banner and there are several type styles and fonts to choose from but only two different fonts at a time may be used. Any selected text can be altered, heightened, widened, shadowed and its colour altered very easily. The two language sample banners included give an interesting application for this program. One asks you to dress a girl, with instructions in French, picking the clothes from those shown. This illustrates the click and move facility of this program. The other has hidden pictures that have been put behind others and by using the 'behind' button they can be viewed and moved. I could go on extolling its merits for much longer but I have covered most of its main facilities. It is an excellent buy at £34 (single user) or £89 (16 users) + VAT.

Having used Newspaper extensively in the past it was interesting to see the **Volume 3 Artwork disc**. It contains some attractive border patterns which are both horizontal and vertical so one can enclose an area completely without having to mess around with it. There are a few items of food and dinner plates, cutlery etc. which I found rather uninteresting in black and white although the colour versions were better. The remaining art consisted of various maps, Britain & Eire, Europe, the Americas etc. which could prove useful for including in projects. The disc contained all the art in two versions, black and white and colour. The colour ones were attractive and I was sorry I did not have access to a colour printer. Having previously

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used a version of Newspaper that had to run through all the library before producing the screen menu (v 1.8A), it is good to find that the later versions produce the index directly. SPA will upgrade 1.8A to 1.8B free of charge on return of the master discs. If you have version 1.6 or earlier this artwork will not be easy to incorporate into your library. SPA will upgrade to the latest version (v 1.9) for only £18 + VAT. Well worth it for the library index and for the extra and faster printing facilities. This Artwork disc is a useful addition to the art library of Newspaper. Artwork discs cost £12 (single user) or £29 (16 users) + VAT.

Another useful disc to possess if you use ***RM 186*** mode programs and want to print what you see on the screen, is **Screen Saver**. This is a small program which must be loaded before such programs as WriteOn (Windows must not be present for this to work). Then, whenever you want to save the whole screen, just press CTRL SHIFT and the large + key together and give the screen a filename. Included on the disc is a program called PRSHOP which enables you to load in your saved program and to print it. Colours and print sizes etc. can be altered in this program as well. Screens can also be put into RMBasic programs using the Graphics Extension. Low resolution screens can be used directly in Newspaper but as they are 2 zones wide and 5 deep they will not fit into the Studio directly for altering. SPA thought of this and have included another program called NEWSPIC which puts the whole screen up and shows the rectangular area that the Studio can deal with. This can be moved around and the required area selected, saved and then used in the Newspaper Studio. The last program included called SHOWPIC, used from MS-DOS, puts saved pictures on the screen for viewing. This disc has good facilities if you are wanting to use screens from RM 186 mode programs for insertion in some other program or just to print pupils screens after they have gone to save lesson time or because of a lack of printers. Screen Saver costs £21 (single user) or £54 (16 users) + VAT.

In the next issue of the magazine I will review SPA's **Bayeux** and **PageLink** programs.

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Thoughts for Net LM

Paul Bramwell

I run a five server Net LM system with everything from 186's to Multimedia 486's and notebooks. We have printers from 9 pin dot matrix and Integrex colourjet to postscript lasers, plotters and HP 550C. With over 800 users as well, you see why I am always busy.

Every day, but especially after even a short holiday, I get users (even staff) coming and complaining "someone changed my password". I know - it happens to everyone and all servers have gremlins inside maliciously changing everyones password but admins. Still, since I want all users to use passwords, I have no alternative but to put passwords back. I tried hints such as IDIOT or DUMMY but it never really works. There was a time when I used to collect the list of user ID's and spend half an hour on Friday afternoon playing with the user manager utility. Then came enlightenment. Someone from RM suggested that if I sat at the server console and logged on as admin I could use the command NET USER USERNAME PASSWORD. (ie NET USER ADMIN SECRET). It helped but didn't solve the problem caused by long holidays.

What I wanted was a facility to re set all but a select few users' passwords automatically. After some trial and error I have a working solution such that on the last day of every half term I change all users passwords back to password. On the first day back they all rush to change their passwords to something less obvious. So, the process:-

At the server console (preferably the PDC on a multi server system) type the following:-

NET USERS > USERS.TXT this will create a three column text file listing all your users in a file called users.txt. To see what I mean simply try NET USERS and watch the names scroll up your screen. Copy the file to a floppy and move to a work station - its easier.

Load up Word for Windows and open the file users.txt. Word will realise this is not in its native format and suggest it might be text. Ignore this and select **Dos text with layout**.

Once the file is loaded then delete the top line *(User accounts for \\serverx1_____@ Console)* or something like it.

Highlight all the text (Ctrl and 5 on the numeric keypad).

Use the Table menu option (don't hold you breath - it might take a second or so even on a powerful computer). Then select Convert text to table.

You should now have a three column table. Basically, the task now is to cut and paste columns two and three onto the bottom of column one to produce a single column of names.

I should point out at this stage that all my users have IDs prefixed by a letter to indicate the year they joined the school. ie NABBO01 (N = year of entry, ABB = 1st three letters of surname, 01 allows multiple surnames such as is common with smith [NSMI01 NSMI02] or Brown [NBRO01 NBRO02] etc). These users are then grouped so that their files are

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kept in sub directories. ie C:\lanman\rmnet\users\year93\ NABB01.001 etc. This is so that at the end of an academic year I can easily delete all directories for a year group. Anyway, I digress. The point is that there is a rationale behind my use of user id's.

Now, highlight the entire column. Go to tools and then sorting. It may take a few seconds but you will have all your users listed in alphabetic order. Edit out users whose passwords you **DO NOT** want to reset. ie ADMIN etc. (I might suggest a macro to save repeated use of the table, delete row commands).

When you are happy with your list of users make sure the column is wide enough not to force text wrap in any cell. Now, go to **File save as**. From the file type option select **Dos text with layout** and save your file as **users.xls.**

Quit Word and load Excel. Open your users.xls file and insert two columns to the left of the user names. At the top of column 1 type net and at the top of column two type users. Fill down these columns. At the top of column 4 type your new password (ie PASSWORD) and then fill it down the column.

Go to File and save as. Save your file as USERS.CMD.

Now, copy your file into the C:\lanman\netprog directory (I only put it there for the sake of being tidy since all my CMD files are there). Finally, logged on as admin and as the bell rings to finish for the holiday type users and press enter. It will take some minutes but all users passwords will be reset.

I don't know what RM think about this and I must admit I tried it first with a list of 10 users and made sure I had a FULL backup before trusting the full list of users to it. But, it worked.

Talking about backups a couple of interesting points arose from a minor disaster at my place. Firstly, let me say I have a phobia about backing up. I do a FULL backup every night and additional full backups about every 7 days. So, when one of my servers crashed dramatically and I was advised to reformat and restore I didn't worry too much. However, the server concerned uses an EZTAPE backup unit. Restoring from EZTAPE is not funny. Typically it took 3hrs 45 minutes to restore the first tape and 3hrs 30mins for the second tape. However, all backups on my server take 3 tapes. You guessed it. Every time I tried a restore the third tape failed and my system was still useless - it took 7 hrs to tell me it had failed. Before anyone panics about how I backup every day when it takes 9-10hrs using EZTAPE and 3 tapes I should point out that this server backs up every night using a SYTOS tape in the PDC and passes data down the backbone. I only backup to the EZTAPE once a week and a technician does that. The moral of the story is that I went back through 4 or 5 generations of tapes. So far in fact that it was only at the last minute I realised I had changed my password for admin and couldn't remember what it was on the oldest tape. So, in addition to backing up make a note of the admin password on each tape.

Even better - and thank goodness I had done it. Clone your admin user,

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make sure the clone has identical desktop and access rights as admin. I suggest something like a user of PANIC with a password of PANIC. Put the details in an envelope and store it in the school safe with a few written instructions (and the telephone number for the hot line). If ever you are ill or unable to get to your system it could save a lot of trouble.

To stop me rambling here are a few other goodies I use regularly.

Do you ever want to broadcast a message to all users? I often put messages warning that files will be deleted or printers have changed etc. To do it add a line as the first entry in the progmanr.exe & progmanu.exe MTSL. eg Echo On 1st April all files will be deleted from the system. Then, whenever anyone logs on the message is displayed in an attractive box waiting for the user to click on OK.

I don't know about the rest of you but I hate games and will not have them on the system. However, there are some 'games' which are actually good for use in maths lessons. One example is the three-D tetris game. My maths teachers assure me that it plays a major part in some obscure part of their National Curriculum. However, when I put it on the system it was only a matter of hours before the entire school was wasting resources playing the thing. It wasn't the squeaky noises it passed off as music so much as the fact that everyone gets better scores than me. So, to get round the problem I have a directory in public called games. Anything of a dubious nature goes in there. I then use the AT command to allow or restrict access to times when maths lessons are scheduled. For example:-

AT 10.35/Every:W,F Net access C:\public\<game> users:RX This allows access.

AT 11.35/Every:W,F Net access C:\public\<game> /REVOKE users This denies access and display a message 'Access to the specified device, path or file is denied'.

Using the same principle you can restrict access to things such as printers - isn't it amazing how people will print 40-50 copies of a document to the laser late in the evening when you gone home? Try this:-

AT 17:00 /EVERY:M,T,W,Th,F NET ACCESS \PRINT\LASERQ / REVOKE USERS

Then, the following morning:-

AT 08:00 /EVERY:M,T,W,Th,F NET ACCESS \PRINT\LASERQ /grant users:c

(Thanks to the people at RM for the last two tips.)

Last tip, and a plug for the RM Bulletin board. I got really fed up trying to use the bulletin board because I couldn't find a good comms package and the windows applet was useless. So, I spoke to the help line. They downloaded (something I couldn't manage myself) a shareware program called LYNC. It is dos based, actually I find that an attraction at the moment, but it is by far the easiest comms prog I have used. With it I have become a regular user of the bulletin board.

Finally, has anyone got Corel Draw V3 running across the network. I installed it on my CD Server and got it to run from that but found it ran much faster if installed on the PUBLIC\LIB

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directory. The cd is still available so users can access the clip art. Unfortunately, it took months to get Corel itself running properly and I still haven't got any of the other programs in the collection (paint, mosaic, trace, capture etc,) running. Some help would perhaps prevent a suicide. Incidentally, has anyone got an address for the Corel CD Artshow discs. The only English address I could find insisted I join a user group for some extortionate cost before they would sell me any of the discs.

ps - an after thought. I recently had a directory I couldn't delete. It contained a file which was not hidden, system or read-only. In fact it was a file in one of the subdirectories created by the National Curriculum courseware from RM. Even RMTREE DEL /R /H *.* wouldn't shift it. I couldn't do it from the server console either and XTREE pro gold gave up as well. The solution? logon to the server console as admin and run the windows filemanager.

I've also had a problem with files that cannot be deleted except at the server. There seems to be two possible things that can happen. Firstly, some programs will allow you to use an "illegal" file name (one which contains a space or other reserved character such as a ?) and secondly files which are created on the server directly may have names which are valid in OS/2 (which supports long filenames) but not valid in DOS. (For an example, have a look in C:\PUBLIC\APPSTART. On all four of our servers there's a file called MSB4W.EXE.EXE which is a valid OS/2 name but not for DOS. If you look at the same directory from DOS you won't see the file and you can't delete it (even if you did DEL M.*) Tricks for getting rid of "bad" filenames often involve the use of wildcards (the * and ? symbol). For example, the old PC Paintbrush that used to be available with the PC186 allowed you to put a space in the filename. When you tried to delete a file called MY PIC.PCX DOS simply says that you can't do it (the exact message depends on the version of DOS but the file won't go!) If you type DEL MY?PIC.PCX then the file goes. The only problem is that any file called MY6PIC.PCX would also go. For safety when you are using wildcards to delete it's always a good idea to do DIR filename first and see what files are listed. If they are the ones you want to get rid of then just type DEL and the same name to delete them. If you see other files then what you may have to do is to copy the other files somewhere else temporarily, then delete the bad file and finally copy the other files back*

Corel Draw is described as being "network neutral" - it's not designed to block working on a network but it's not got any specific setup for a network. I have got it working fairly well on Net LM and if you would like copies of the MTSLs and INI files then send a disc to the editor to request them. Unfortunately it works incredibly slowly with Windows 3.0 (30-40 minutes to load into 25 stations!) but much better with Windows 3.1 (about 5 minutes) so it may not be suitable for use with a full class.

It's worth remembering the Data Parse command in Excel if ever you want to process the lists from the Net User command - I find it much faster than using Word to make tables.

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Hints and Tips for Net LM

Lanspool

If a user sends an application to the printer and the station controlling it is switched off then the job is paused and does not come off hold automatically when the station is switched on. The job will also be held if the Lanspool station crashes (or is reset) while the job is printing. I'm not sure if this is a bug or a feature. Ideally, I want the program to start the job again after a crash. Does anyone know if this can be done?

Printers for DOS applications

When I bought printers for my network I deliberately kept the number of types of printer to a minimum; NEC dot matrix, HP DeskJet for slightly better quality and HP LaserJet IIIP for the people who needed laser quality. This makes it fairly easy to set up Windows and did make it easy to set up DOS applications with Net 3; I made sure that dot matrix printers were on stations numbered 2-39, DeskJets on 40-59 and LaserJets on the rest. A simple program returned an errorlevel to the batch file so that it could find the kind of printer which was connected and then the appropriate configuration file was used. eg:

```
findaddr
if errorlevel 6 goto laserjet
if errorlevel 4 goto deskjet
:dotmatrix
copy dp_prefs.dm n:dp_prefs
goto load
:deskjet
copy dp_prefs.dj n:dp_prefs
goto load
:laserjet
copy dp_press.lj n:dp_prefs
:load
...
```

With Net LM this is not so straightforward; instead of a nice tidy number each station has a name. Much easier to work with for most things but you can't group the names so easily to get the printer type (all findaddr does in the batch file is divide the station number by 10). The suggestion that was made to me was to add a station environment variable for printer type; I have PT=NEC or PT=DJ etc for each station and the MTSL uses a CASE structure to decide which printer driver to select. This works well but does meant that you have to add the extra environment variable to every station. If you know you are going to do this from the start then it's worth cloning each new station from an earlier one which has the same printer or even creating another example station like the M-SeriesEG

DOS programs and printing

A well behaved program will print on a network without problems. Unfortunately, many programs are not well behaved. The sympton is that you send data to print and the program goes through the motions but nothing happens. Quitting from the program does make the printout appear. What is happening is that the program is not sending an End of Job message to the network so nothing gets printed. Quitting back to Windows automatically closes all open files so the job prints. I have got a smal program called PRTTIM which checks every so often to see if a print job has been started. If a job is started but no data is sent to it for 5 seconds then PRTTIM simply closes the spool file and the print out starts. A similar

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program is included with Lanspool (but it is much bigger)

Local hard drives and Net LM

If you have a few computers with local hard drives then you may wish to have applications stored on those computers made available to any user who logs onto the network at that computer. An example would be the software to drive a scanner; I don't want to install it on the network server and add it to every desktop but I do want any user to be able to use the scanner. For unrestricted users there is no problem (just tell them the name of the application to run) but for restricted users a possible solution is to create a new MTSL to replace PROGMANR.EXE. The idea is that all users will get an extra group on their desktop, called LOCAL which contains one icon. This will be for notepad but with a text file attached so that when it is loaded it simply says "There are no programs here unless you are on a computer with a local hard disc" (it could say something like ".. unless you are on the computer with the scanner" - personalise the message to suit your own setup). Go to each computer with a hard drive and run Windows without starting the network. Add any applications you want to appear for network users to a group called LOCAL and quit Windows.

Log on to the network as ADMIN and run Notepad to create the text file; save it as U:\W30\LOCAL.TXT. Run the program to set up the public desktop and add a new group called LOCAL. In it put just one item; its command line is NOTEPAD.EXE U:\W30\LOCAL.TXT. Now copy PROGMANR.EXE to PROGMANL.EXE (the file is in P:\APPSTART) and then open it up in Applications Manager. Find the lines near the end which say:

```
copy %source%progman.%iext%
  %td%\progman.ini
copy %source%*.%gext%
  %td%\*.grp
```

and add

```
if exists c:\windows\local.grp
  copy c:\windows\local.grp
  %td%
```

after it. Save the program in the normal way (it needs to be saved as a Windows program) and then use User Manager to change the public shell to be PROGMANL.EXE. Log on as a restricted user and check that on a station without a hard drive you simply see the Notepad message but on a station with a hard drive the application(s) you want appear properly.

logonname and username

Using the instruction logonname in a Windows MTSL sets the environment variable logonname to be the name of the user currently logged on. I don't know why this isn't set automatically at logon time - I can see that it would be useful quite often. If you want this then you could edit the Public shell program and just include the logonname statement near the end. See the section above to find out how to do it but remember that you should ***never*** change the standard program that RM supply unless you are certain that you could get back to where you started from if something goes wrong.

Just an aside; why didn't whoever wrote MTSL read a DOS manual on batch files first? MTSL has lots of advantages over batch files but inconsistencies like using IF EXISTS

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in MTSL but IF EXIST in batch files really bugs me! (and it can't be defended by saying that the whole IF.. structure has been extended because IF EXISTS is treated quite differently - it doesn't need a matching ENDIF) One of the things that I find confusing about MTSL (probably because I'm used to programming in other languages) is the lack of quotes around text strings and the absence of the word THEN; for example to find out if print manager is installed you could use the following code

```
getini win.ini [windows]
  spooler
if %getini%=yes
echo Print manager installed
endif
```

yes doesn't have to go in quotes (which is fine) but if you put

```
if %getini%=yes then
```

what happens is that the system checks to see if the spooler string is set as "yes then" which of course it isn't so the program assumes that print manager is not installed. Note that you can safely add text to the line endif so this is a good place to put a comment explaining what the endif is ending.

Disaster recovery

If ever you have to recover from a total disaster on Net LM then there are certain things which will make the process less painful. The first is to make sure that you have a known good backup. Knowing that the backup is good involves two things; making sure that the right files are backed up and that the tape they are written to contains a good copy of those files. The second is easy; if you are using Sytos then make sure that you do a backup and compare; this forces the program to check that every file on the tape is readable and is the same as the files on the disc. Note that you should read the volume log to make sure that there were no errors. If you run Sytos in unattended mode then you will not get any other notification. In general, if you tell the system to back up all the files then this is what you will get but the one thing you won't get is the User database (the file called NET.ACC). To get this you must use BACKACC and you should schedule this using an AT command to run before your tape backup starts (on my server with about 20 000 files it takes about 90 minutes for BACKACC to run; I'm pessimistic so I allow 3 hours) Even this isn't enough. From time to time BACKACC will fail to work so you should check on a regular basis that you are getting a file called ACLBAKC.ACL in the C:\LANMAN\ACCOUNTS directory with a sensible size and date stamp. The only things you can't back up directly are the printer queues (because they are not files) There are two options here; the first is to write down details of each of the queues you have set up and the second is to get the program called PQINFO.EXE from the RM bulletin board. This reads all your printer queues and writes their details to files which can be backed up. If you need to re-create the queues then this can be done automatically.

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Your Magazine

I really do welcome items for the magazine from anyone. You don't have to be a great writer to send something in; send a letter or a short tip for the Hints and Tips pages, everything is welcome. If you want to phone and talk something over then please do; even if you aren't sure how to write something down then I can always include your ideas in Hints and Tips or as a plea for help.

I would be particularly pleased to hear from the people who are using RM computers at home; there are quite a lot of you out there. Some of you will be experienced at working with computers and I would be interested to know why you chose RM for home use. Others will have responded to RM's advertising, perhaps because your children use the same computers at school. How are you getting on with your new machine? Did you have any problems getting started? It doesn't matter if you still don't know the answer to the problem- this is how you'll find out - and it doesn't matter if you think that your problem was trivial; remember that there are many other people who are going to be in exactly the same position as you and will welcome the help that you can give.

If you are writing for me then the ideal is to send me a disc produced using Word or Word for Windows but I can cope with any word processor that runs on a Nimbus (I think). If what you are sending is short then a letter on good old fashioned paper is fine. I can also accept articles left on the bulletin board - the easiest way to to do this is to prepare your article in a word processor and save it normally. You then send a short e-mail to me and attach your file to it when you are on-line. It's actually easier to do than to describe because the whole thing is menu driven.

Finally, we pay for published articles at the rate of £5 per printed page (although all payments are at the Editor's discretion).

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Full and half page advertisements can be placed in the magazine and details can be obtained from the Advertising Manager. We also take classified ads and members may place free ads for surplus equipment in MicroMart.

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